ABSTRACT

Validation or identity authentication is one technique for maintaining the security of a system. In everyday life, there are still many authentication systems that are done manually and there is the forgery of identities such as parking payment systems, employee attendance, and student attendance. Identity forgery can occur because authentication of a system uses only a simple feature, namely username, password, and RFID on ID Card. To reduce authentication errors and identity forgery, a system must have a biometric feature such as finger print, face recognition, etc.

In this final project, an identity validation system is designed using several features, namely RFID on ID Card and face recognition. When identity validation occurs, the system will read the code chip on the ID Card using the RFID-RC522A module on Arduino UNO and validate it with face recognition. The feature extraction method used in the face recognition process is Direct Gray Level Co-occurrence Matrix (Direct GLCM), this method directly uses GLCM by converting a matrix into a vector that can be used as a feature vector for the classification process. For the classification method used is the K-Nearest Neighbor (K-NN) algorithm, the purpose of this algorithm is to classify new objects based on attributes and samples from training data.

The data used in the system are 8 ID Cards and 168 face images for training data, and for test data 8 ID Cards and 210 different face images are used. The results obtained from a series of processes above are a system that can be used for identity verification with system accuracy obtained at 97.50%, with the value of False Acceptance Rate (FAR) of 0.53% and False Rejection Rate (FRR) of 1.97% .

Keywords:Identity Validation, RFID, Arduino, Face Recognition, Direct GlCM, K-NN.